Zennoske IWATSUKI*: **Notes on Asiatic Calymperaceae (mosses)****

岩月善之助*: アジア産カタシロゴケ科蘚類覚書**

Some interesting species of the Calymperaceae have been found during my studies of mosses of Southeast Asia and Japan. The members of this family are very interesting to me because of the unusual and characteristic structure of the leaves: the teniolae, the cancellinae, etc. Since a large number of species have been described from the tropics and subtropics, it is clear that they need critical revision of their taxonomy and geography.

I wish to express my deepest appreciation to Dr. A. J. Sharp and Dr. S. Hattori for their many helpful suggestions. I am much indebted to Dr. R. Ross, Keeper of Botany, British Museum and Dr. I. Mackenzie Lamb, Director of the Farlow Herbarium for their kindness in permitting me to examine type specimens. My thanks are due to Dr. N. Kitagawa, and Dr. T. Pócs who showed me their collections.

1. **Syrrhopodon japonicus** (Besch.) Broth., Nat. Pfl.-fam. ed. 2, 10: 233 (1924). *Calymperes japonicum* Besch., Jour. de Bot. 12: 296 (1898).—*Syrrhopodon treubii* Fleisch., Musci Fl. Buitenzorg 4: 1636 (1922), syn. nov.—*S. javanicus* Broth. in Fleisch., Musci Fl. Buitenzorg 1: 222 (1904) nom. nud., syn. nov.

Fleischer (1922) described a new species of *Syrrhopodon*, *S. treubii* from Java with detailed illustrations. Recently I examined the type of *S. treubii* at the Farlow Herbarium, Cambridge, Mass., and found that it is identical with *S. japonicus*.

Wang (1967) reported *S. japonicus* as a new addition to the Formosan moss flora based on my determination. This species is rather common on bark or decaying trees in the mountains above 1000 m alt. in Formosa, the

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Philippines, Malaya and Borneo. Thus, the range of this species is now quite wide. Also, recently Pócs collected this species in North Vietnam.

Syrrhopodon gardneri might be the closest relative to the present species since it has denticulate leaf-shoulders. However, *S. gardneri* is usually much smaller, and has shorter leaves with the leaf-cells papillose on the lumen, and also much shorter stems (usually 10 mm long) with reddish rhizoids, whereas *S. japonicus* is larger, and has longer leaves with the leaf-cells papillose at upper end of the cells, and stems taller (often to 50 mm long) with brownish rhizoids near the base.

Specimens examined (Japanese specimens are omitted). FORMOSA. Mt. Ali, ca. 2200 m (coll.[1] Z. I., A. J. S. & E. S., 2143); Between Mt. Ali and Tong-pu, 2200–2500 m (coll. Z. I., A. J. S. & E. S., 564, 2571a, & 3059a); Hsueh Shan Shan Mo, Mt. Anma-shan, ca. 2100 m (coll. Z. I., A. J. S. & E. S., 1214, 1218, 1227, 1259, & 1263; coll. Wang, 610); Ulai, south of Taipei (coll. Z. I., 3696); I-lan, Tayuanshan (coll. Wang, 368); Taichung, Mt. Siao-hsueh, 2500 m (coll. Wang, 707); Mt. Lu-chang-ta, 1900 m (coll. Wang, 1578); Mt. Kuei, 2300 m (coll. Wang, 1604 & 1609); Mt. Li, 1800 m (coll. Wang, 1846). PHILIPPINES. Luzon Island, Mt. Banahao, 1250–2000 m (coll. Z. I., A. J. S. & E. S., 16171), the same mountain, 2000–2300 m (coll. Z. I., A. J. S. & E. S., 14209). NORTH BORNEO. Mt. Kinabalu, 1350–1500 m (coll. Z. I., 263 & 269a), 1400–1900 m (coll. Z. I., 291; M. Mizutani, 2069 & 2070), 2146–2000 m (coll. Z. I., 552a & 2556), 2146–2500 m (coll. Z. I., 718), 2500–2450 m (coll. Z. I., 1142), 2500–2150 m (coll. Z. I., 1196 & 1200a), 2150–1700 m (coll. Z. I., 1255a, 1267, & 1252). JAVA. Buitenzorg (coll. Treub, 3/1897—syntype of *S. treubii* Fleisch., also det. by Brotherus as *S. javanicus* Broth. in FH.); Gedeh, auf dem Gipfelgrat des Gegerbintang 1900 m (coll. M. Fleischer, 20 Juni 1911,—syntype of *S. treubii* in FH); Gegerbintang bis Taehtyole, 1400–1500 m (coll. Fleischer, 20 Juni 1911, det. by Fleischer as *S. gardneri* in FH). WEST SUMATRA. Bataklande am Vulkan Sibayak, 1500–1600 m (30 Aug. 1913, det. by Fleischer as *S. gardneri* var. *longifolium* Fleisch. in FH). MALAYA. Cameron Highlands, near Robinson's Fall, ca. 5000 ft (coll. H. Inoue, 10897). NORTH VIETNAM. Prov. Hoa-binh, Mt. Nui Bieu, ca. 900 m (coll. T. Pócs, Ninh & Bich, 3154d).

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[1] Names of the main collectors are abbreviated as follows: Z.I.—Z. Iwatsuki; A.J.S.—A.J. Sharp; E.S.—E. Sharp; Wang—C.K. Wang.

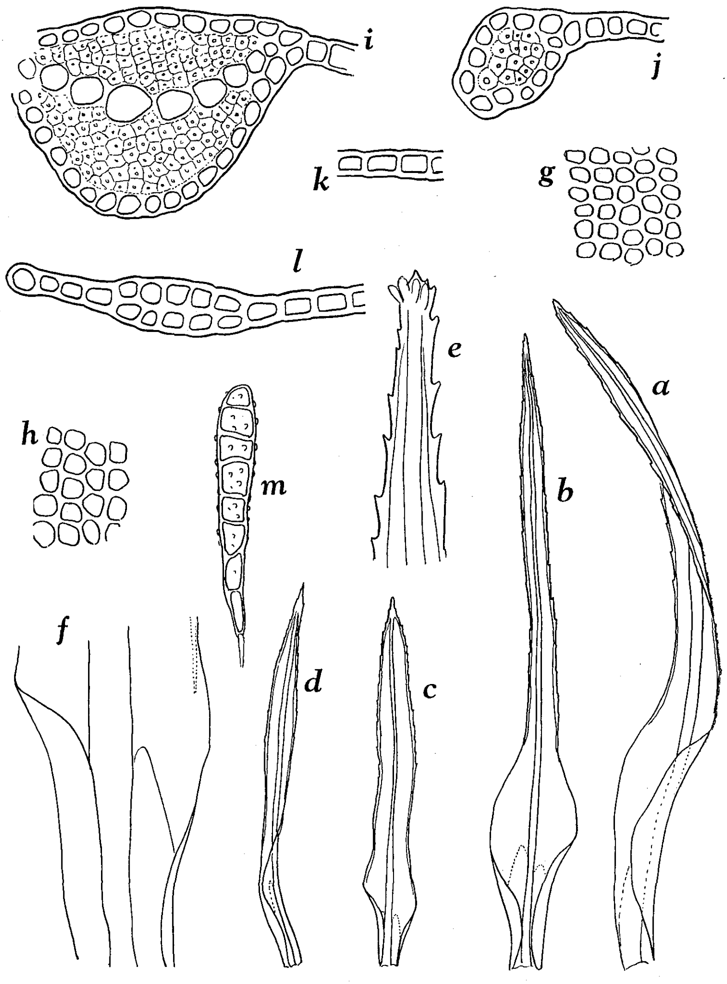

Fig. 1. *Calymperes johannis-winkleri* Broth. var. *johannis-winkleri.*

a-d. Leaves, ×10. e. Leaf apex, ×38. f. Leaf base, ×38. g-h. Leaf-cells in middle, ×375. i-k. Cross-section of leaf at middle, ×375. l. Ditto, at lower portion of lamina, ×375. m. Gemma, ×375. Figs. a, b, e, g, i-l were drawn from the type; figs. c, d, f, h, and m from specim. from North Borneo (Z.I., *1704*).

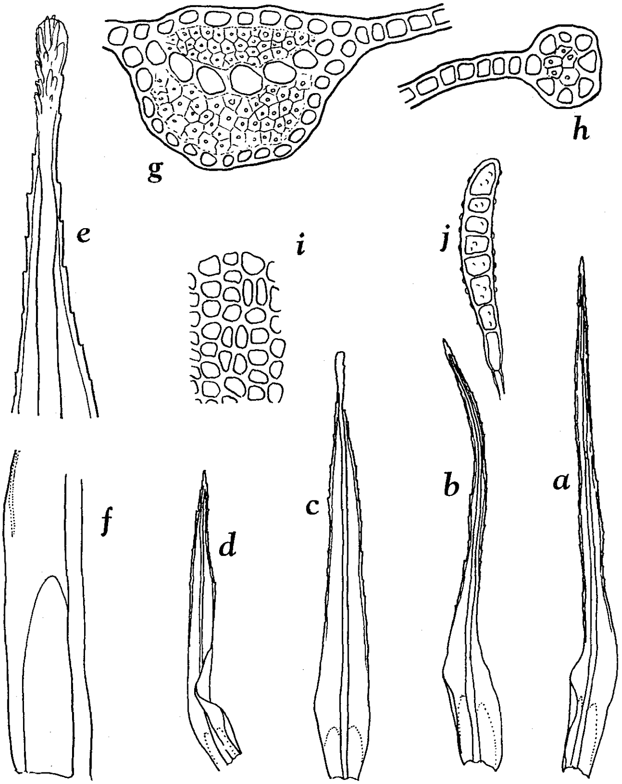

Fig. 2. *C. johannis-winkleri* Broth. var. *hasegawae* (Tak. et Iwats.) Iwats.

a–d. Leaves, ×10. e. Leaf apex, ×38. f. Leaf base, ×38. g–h. Cross-section of leaf at middle, ×375. i. Leaf-cells in middle, ×375. j. Gemma, ×375. Figs. a and b were drawn from specim. from Luzon I. (Z.I., A.J.S., & E.S., 16183); figs. c–j from specim. from Yakushima I., Japan (Z.I., A.J.S., & E.S., 15601).

2. **Calymperes johannis-winkleri** Broth. var. **hasegawae** (Tak. et Iwats.) Iwats. comb. nov. *Syrrhopodon hasegawae* Tak. et Iwats., Jour. Hattori Bot. Lab. 21: 240 (1959)—*Calymperes hasegawae* (Tak. et Iwats.) Iwats., Jour. Hattori Bot. Lab. 28: 220 (1965).

Examination of the type specimen of Bornean *C. johannis-winkleri* revealed that this species was very closely related to *C. hasegawae* described from Yakushima I., southern Japan. Sharp and I collected several specimens of *C. hasegawae* in the Philippines in 1965. Because Japanese as well as Philippine specimens are somewhat smaller plants with more crispate leaves than those of *C. johannis-winkleri* from Borneo, I think it is necessary to separate them as the var. *hasegawae*.

Calymperes tahitense (Sull.) Mitt. might be the species most closely related to *C. johannis-winkleri*. However, *C. johannis-winkleri* is larger (often to 50 mm long), with the leaves having indistinct teniolae and the leaf-cells smooth and thick-walled, whereas *C. tahitense* is smaller (20–40 mm long), with teniolate leaves and leaf-cells papillose and not very thick-walled.

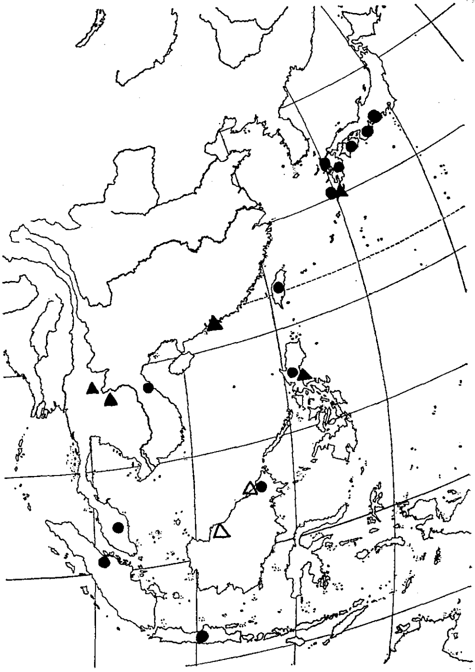

Fig. 3. Distribution of *Syrrhopodon japonicus* (●), *Calymperes johannis-winkleri* (△) and its var. *hasegawae* (▲).

Specimens examined. Var. *johannis-winkleri*. WEST BORNEO: Bukit Raja (coll. Hans Winkler, 9/12/1924, no. 3169, isotype in BM); NORTH BORNEO: east slope of Mt. Kinabalu, 600–1100 m (coll. Z. I., 1704).

Var. *hasegawae*. JAPAN: Kyushu, Yakushima I., Anbô, 100–200 m (coll. Z. I., A. J. S. & E. S., 15043), Tainokawa valley in the same island, 250–450 m (coll. Z. I., A. J. S. & E. S., 15601), Suzukawa in the same island, 150–500 m (coll. Z. I., A. J. S. & E. S., 15587, 15589, & 15590). HONG KONG: Tai Tam Reservoir, 50–200 m (coll. Z. I., 45). PHILIPPINES: Luzon I., Mt. Banahao, 1250–2000 m (coll. Z. I., A. J. S. & E. S., 16127, 16176, & 16183), 2000–2300 m (coll. Z. I., A. J. S. & E. S., 14159), 2300–1800 m (coll. Z. I., A. J. S. & E. S., 14290, 14301, & 16295). THAILAND. Payap, Mt. Doi Pacho, ca. 1600 m (coll. N. Kitagawa, T3778), Udawan, Mt. Phu Luang, ca. 1500 m (coll. M. Tagawa & N. Kitagawa, T1638).

Syrrhopodon japonicus and *Calymperes johannis-winkleri* previously were reported only from limited areas, but now they are known to be distributed throughout the island chain from Japan through Borneo and Java in the western Pacific region. *C. johannis-winkleri* has not yet been found in Formosa, but has been collected from Thailand and Hong Kong. It is quite probable that it will be collected in Formosa.

The Japanese *Syrrhopodon tsushimae* Card. was reported recently from various parts of Asia, e. g., by Robinson (1964) from Assam, India, by Iwatsuki (1965) from Hong Kong, and Luzon, Philippines. Pócs and Tixier (1967) reduced it to a synonym of *S. larminatii* Par. et Broth. of North Vietnam. Thus, *S. larminatii* is now recorded widely from southeast Asia. The Calymperaceae include many more species which need critical re-examination. Many species, which are each now thought be endemic to a certain area, will be reduced to synonyms of other species.

Summary

Syrrhopodon treubii Fleisch. from Java is reduced to a synonym of *S. japonicus* (Besch.) Broth. The range of *S. japonicus* now includes Japan, Taiwan, Philippines, Borneo, Java, Sumatra, Malaya, and North Vietnam. The relationship between *S. japonicus* and *S. gardnerii* is also discussed. A new combination, *Calymperes johannis-winkleri* var. *hasegawae* (Tak. et Iwats.) Iwats. is proposed. The var. *johannis-winkleri* is found in Borneo and var. *hasegawae* is reported from Japan, Hong Kong, Thailand, and the Philippines.

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ジャバから記載された*Syrrhopodon treubii* Fleisch.は邦産のカタシロゴケ*S. japonicus* (Besch.) Broth.の異名とされるべきものである。日本と台湾に固有と考えられていた本種の産地として，今回新たにフイリピン，ボルネオ，ジャバ，スマトラ，マラヤ，北ベトナムを追加した。インドから記載された*S. gardneri* (Hook.) Schwaegr.はカタシロゴケと近縁で，熱帯地方ではしばしば同一地域に産するが，葉細胞や仮根で両者は容易に区別できる。屋久島から記載された*Calymperes hasegawae* (Tak. et Iwats.) Iwats.はボルネオの*C. johannis-winkleri* Broth.の変種とするのが適当である。この変種は今回新たに香港，フイリピン及びタイからも見出された。

○地衣類思い出話 (13) (富樫 誠) Makoto TOGASHI: Miscellaneous notes on lichens or lichenological survey (13)

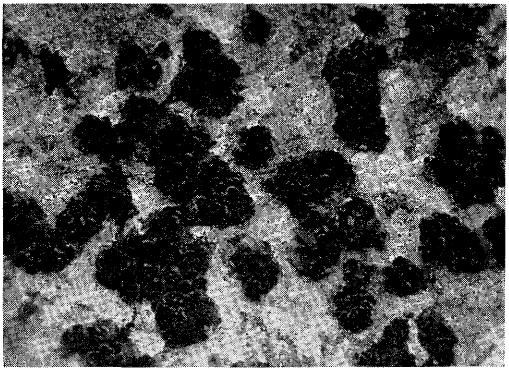

Fig. 1. *Heppia Guepinii* (Del.) Nyl. subsp. *shinanoana* Asahina.

昭和29年(1954)信州上田市の西北一里許の所で，虚空蔵山が千曲川原へ山裾を突入する地点の岩壁で，*Heppia Guepinii* (Del.) Nyl. subsp. *shinanoana* Asahinaを見付け良好な標本多数を採集したが，これは葉体外形がよく整った*Heppia*中の逸品で，本州中部以西によく出るクロヘップゴケ*Heppia japonica* Asahinaなぞよりも遙に立派である(本誌**10**: 682, 1934)。何にしても東亜の*Heppia*属は研究不十分で，もっと沢山の標本を集める必要がある。